URBAN LEDS
URBAN LOW EMISSION DEVELOPMENT STRATEGIES

MAKING URBAN HEALTHCARE RESILIENT FOR A GREEN ECONOMIC RECOVERY

Installing sustainable water and energy solutions in two Rwandan cities

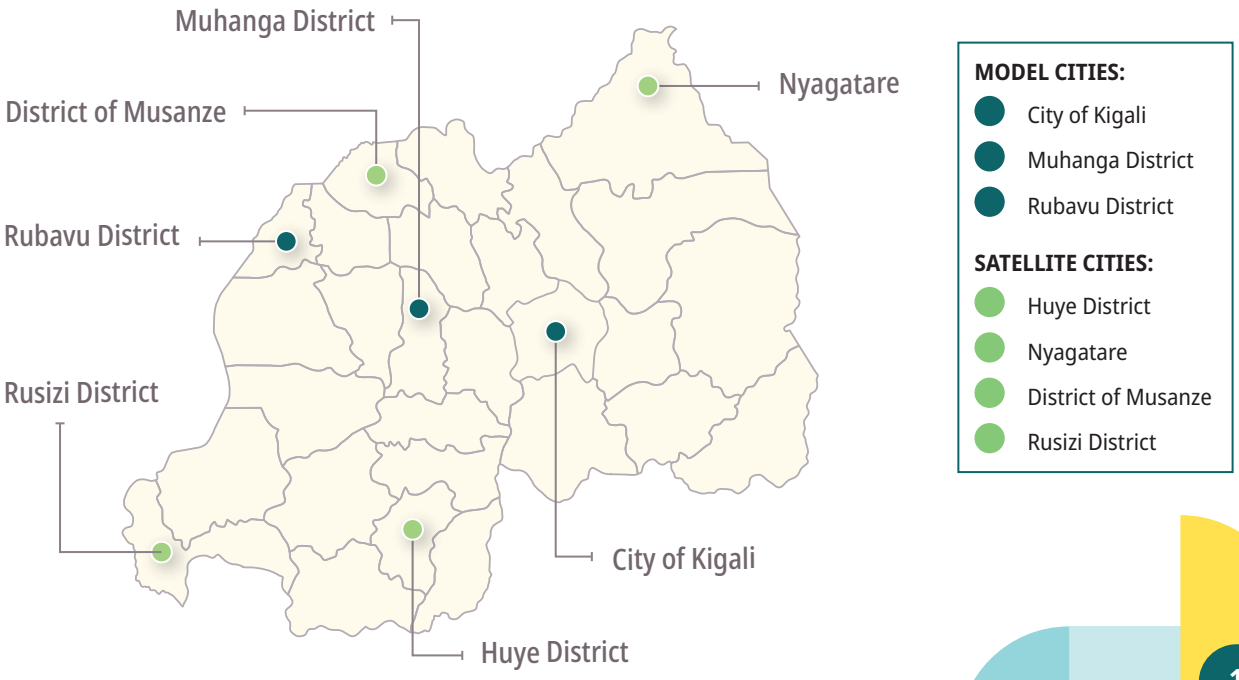
An Urban-LEDS II demonstration project case study

The Urban-LEDS II project is making a global impact in reducing greenhouse gas emissions

Accelerating climate action through the promotion of Urban Low Emission Development Strategies (Urban-LEDS II) is a global initiative which proceeds from the first phase of Urban-LEDS (2012–2015). The project aims to support local governments in emerging economies to reduce greenhouse gas emissions through low emission development and increase resilience through climate change adaptation actions.

Urban-LEDS II commenced in 2017 and works in Bangladesh, Brazil, Colombia, India, Indonesia, Lao PDR, Rwanda and South Africa. In Rwanda, the project works in seven cities and districts.

Both Urban LEDS phases have been funded by the European Commission and implemented jointly by UN-Habitat and ICLEI.



Making health care centres in Rwanda's cities more sustainable

The government of Rwanda has made significant progress in building an effective health system to serve its residents well. It is using the global universal access to healthcare framework to increasingly decentralise the health system and enable health centres to access finance. Because of this, many more Rwandans today have access to healthcare services.

In order to provide its people with the best possible healthcare, health centres need adequate access to clean water and energy. With rapid urbanisation, the demand for water and energy at health centres in urban areas is particularly pressing. Yet since these centres are mostly government funded, they cannot carry the cost of sourcing additional water and energy. Resource-efficient water and energy systems and alternative, renewable sources can reduce this cost, making their service provision sustainable. Exploring alternative funding sources could further support the implementation of these systems.

The Urban-LEDS II project partnered with the City of Kigali and the District of Muhanga to roll out demonstration projects to improve both the quality and sustainability of services at health centre by increasing their on-site water management systems and energy efficiency. These improvements also help the cities build back better, a critical component of post-COVID-19 economic recovery and climate resilience. The pandemic also posed a set of challenges to the implementation on the ground, but the project team was able to overcome them and learn valuable lessons for future implementation.

Two Rwandan healthcare centres receive practical and sustainable water and energy solutions

In the City of Kigali and Muhanga District, the Urban-LEDS II demonstration project focused on improving the quality of health services at the Gitarama and Gahanga Health Centres, respectively. The pilot project improved the water management systems and energy efficiency to ensure sustainable health provision and demonstrate the benefits of climate resilient services at health centres across Rwanda. The project provided the following:

1. **Water**
Rainwater harvesting tanks with solar-powered pumps created an integrated rainwater harvesting system connected to the existing pipes. The water is used to flush toilets and water the gardens and filters enable health workers and the community to also drink the water.

2. **Energy**
A range of efficient lighting solutions, including indoor and outdoor energy-efficient bulbs with motion sensors, and solar streetlights decrease the operational costs usually associated with energy supply. High-pressure 300 litre solar hot water geysers ensure the new water supply can also be heated for day-to-day use in the healthcare centre.

3. **Evidence-based monitoring**
The project installed water and energy metres to monitor the resource needs and usage and to enable the health centres and technicians to track the impact of the project. The data can also be used to bolster future applications for climate finance to scale these projects.

4. **Training**
Technicians from the centres received training on maintenance of all of the installations, as well as how to read the meter for effective monitoring and communication of electricity and water usage.

Potential for expansion and future funding

- The project in Muhanga has been submitted to the **Transformative Actions Programme (TAP)** to strengthen the chance of similar interventions attracting funding going forward.
- Based on the success of this project, the healthcare centres were selected as pilot sites for a solar street lighting project.
- The savings incurred from reduced energy and water expenditure could be used to invest in batteries, which will increase the potential of the solar and energy technologies at the health centres.

Reducing and avoiding greenhouse gas emissions

The health centres may not be large contributors to greenhouse gas emissions, but by meeting the increasing demand for energy and water by using sustainable technology, they avoid being locked in to expensive technology that relies on fossil fuels. They are also choosing options that are more reliable, locally available and affordable. By upscaling these technologies, healthcare centres have the opportunity to go completely off grid, making them less reliable on grid energy and reliability, saving money on electricity bills and reducing more greenhouse gas emissions.

Apart from their electricity needs for appliances, lighting and water pumping, health facilities also need heat – another form of energy – for cooking, hot water, sterilisation and incinerating medical waste. The typical approach would be through direct combustion of fossil fuels (diesel, gas, coal and biomass) using on-site boilers, but solar panels can heat water in a more affordable way and provide hot water to sterilise equipment and heat spaces for comfort.

Shifting away from fossil fuel consumption positions health centre to contribute to Rwanda's Nationally Determined Contributions for climate change mitigation by keeping its carbon footprint at a minimum while improving the level of service.

Adapting to the impacts of climate change

Healthcare systems are central to a climate resilient community. These centres are the first port-of-call for the community's most vulnerable members: children, women, the elderly, persons with disabilities and the urban poor – those who experience the impacts of climate change most acutely. The climate risk and vulnerability assessments done for both Muhanga and Kigali show that these groups are most susceptible to severe hazards like landslides, droughts and river floods. They are most likely to suffer from severe heat stress, injury due to extreme events, and diseases often exacerbated by climate change impacts.

The value of a resilient community healthcare system was brought to the fore during the COVID-19 pandemic. Health centres across the country have the opportunity to become a core component of how their country adapts to the impacts of climate change and reach international adaptation targets.

Demonstrating low-emissions climate resilience during a pandemic

Around the world there is a renewed focus on increasing urban healthcare capacity. Yet it is key to do so in ways that also limit emissions and help the city adapt to climate change. This will ultimately create cities that are not only resilient to unexpected shocks like the COVID-19 pandemic, but also the inescapable impacts of climate change. In several countries internationally, solar mini-grids have been commissioned specifically to power healthcare facilities as an emergency response to the COVID-19 crisis. Importantly, integrated mitigation and adaptation projects will further assist local administrations to build back better as a critical component of the post-COVID-19 economic recovery and broader climate change resilience.

The Gitarama and Gahanga health centres have been crucial for Kigali and Muhanga during the pandemic and the roll-out of vaccinations. The improvements to the health care centres' quality and service capacity were exceptionally timely.

Implementing sustainability projects during pandemic restrictions: Communication is key

To overcome travel restrictions, the Urban-LEDS II team partnered with an in-country implementing agent and service provider to oversee the implementation of the demonstration projects and ensure they adhered to engineering standards. The implementation team established a strong communication channel between all parties.

Both municipal administrations were kept up-to-date with progress as the implementation took place. They received weekly updates and reports and they were invited to visit the sites and ask questions. The project team shared pictures of the on-site installation as and when it was happening on an active WhatsApp group.

At both sites, there was a two-step handover to the municipal administration: one meeting explained to technicians the nature of the project and answered queries, and another facilitated the official adoption of the demonstration project by Muhanga and Kigali municipal officials. This helped build institutional support for the project and collaborative learning between the health centre staff, the technicians, the administrative staff and the project team.

Because of the clear lines of communication and coordination, project delays could be flagged in time and raised with the respective party to find a solution. Some delays included restricted travel between districts during lockdown conditions, inability to transport imported materials across borders, and health centre staff's unavailability on certain days when they received their COVID-19 vaccines.

What the municipalities had to say

Would you recommend low emissions infrastructure projects to other local governments?

Mr Ezechiel Niragire *Environmental Protection Officer and Urban-LEDS II focal point, Muhanga District*

I would recommend other government institutions implement these kinds of projects for various reasons. They help reduce the impact of climate change by capturing rainwater. They protect the environment and build resilience to flooding and soil erosion. The also help the population and the health centre to reduce the bill of their water and electricity use.

Mr Bosco Utegerejeyezu *Infrastructure and Street Lighting Engineer, City of Kigali*

It's a good demonstration where we have water treatment and more efficient lights. We'll recommend other local governments scale up these technologies, because it reduces greenhouse gas emissions by using energy from the sun. It also reducing our water and electricity bills.

What is the value of this project to your municipality?

Mr Ezechiel Niragire *Environmental Protection Officer and Urban-LEDS II focal point, Muhanga District*

Other institutions from the district (such as other health centres, schools and other government institutions) can come to the Gitarama Health Centre to see how the demonstration project works. And once they are here, they can see that all the public institutions, as well as private institutions, can implement such kinds of projects. This will help the district to protect our environment by using energy in an efficient way, and by harvesting rainwater.

Mr Bosco Utegerejeyezu *Infrastructure and Street Lighting Engineer, City of Kigali*

It has value to this health centre because it boosts the daylight and reduces erosion. It builds the sustainability of the facility. Before this project, a compound of this health centre was dark, but now in the nights the solar lights help to treat more people coming to the centre.

What impact will this project have on your municipality and the community?

Mr Ezechiel Niragire *Environmental Protection Officer and Urban-LEDS II focal point, Muhanga District*

It increases access to clean water, because this harvested rainwater has been filtered and as we know, clean water reduces water-borne disease to communities. Taking this approach forward and encouraging wider rainwater harvesting will help the district and the community to increase their access to water. This water can also irrigate the field crops and increase crop productivity.

We have sufficient sunlight in our district, so we use solar energy for street lighting. Solar water heaters will also enable the community here to have warm water for fulfilling critical services.

If water from WASAC (Water and Sanitation Corporation in Rwanda), or electricity from REG (Rwandan Energy Generation), is not there, we have alternatives. All of these are benefits which contribute to the mission of the project, to reduce greenhouse gas gases. We are contributing to meet the target of the NDCs as compelled by the Paris Convention.

Mr Bosco Utegerejeyezu *Infrastructure and Street Lighting Engineer, City of Kigali*

It's not only about reducing water and electricity bills, but also about having a well prepared health facility. The project also brings hot water for washing and cleaning. So that means the standards – the way we are able to treat the people coming here – is now better than before.

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URBAN-LEDS II PROJECT AT A GLANCE

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